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CANTOR COLBURN, LLP
20 Church Street
22nd Floor
Hartford, CT 06103

EXAMINER	
JEN, MINGJEN	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/797,297	KUMAR, AJITH KUTTANNAIR	
	Examiner	Art Unit	
	IAN JEN	3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *01 January 1932*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/09/2004*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is in response to the communication filed on April 17th, 2008

2. Claims 1-20 are pending in the application.

3. Applicant submitted terminal disclaimer on June 26th, 2008 has been approved.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1- 2, 5-15, 25-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Obara et al (US Pat NO. 5,661,380) in view of Becerra (Four Quadrant Sensorless Brushless ECM Drive ; CH2992-6/91/0000-0202, IEEE).

As for claim 1, Obara et al shows a method for detecting a rotational velocity of a traction motor in a vehicle comprising: obtaining a traction motor signal having at least one phase, wherein traction motor signal is responsive to an operating condition of traction motor (Column 3, lines 42-47; Column 4, lines 40- Col 5, lines 25; Fig 1; Speed Sensor 6 which obtain the motor input signal

which respond to motor 4 in two outputs 6a, 6b); processing traction motor signal to create an indication result based on a frequency of traction motor signal (Column 3, lines 63 - Column 4, lines 13; Fig 1, primary frequency command generating means 20; alternating current command generating means 80, PWM signal generating means 90); and determining rotational velocity of traction motor based on indication result (See Fig 1, three phase alternating current motor 4, speed sensor 6, current sensor 7, accelerator sensor 8, rotating angular speed detecting means 10; Column 3, lines 30 -50). Obara et al in view of Balch does not show motor signal is responsive to motor in an electrically unexcited state. Becerra shows motor signal is responsive to motor in an electrically unexcited state (Col 1, Introduction, where the sensor is utilized to measure the EMF voltage in motor unexcited phase).

It would have been obvious for one of ordinary skill in the art to provide the EMF voltage measurement, which exhibited in unexcited phase, as the feedback trigger signal as taught by Becerra, to Obara et al in view of Balch, to provide a rotational velocity detection method.

As for claim 2, Obara et al shows obtaining a vehicle data signal (See Fig 1, primary frequency command generating means 20, vector control calculating means 50, alternating current command generating means 80, PWM signal generating means 90 where provides reference feed back signal accordingly to the vehicle condition alone with standard signal Eu, Ev, Ew; column 3, lines 51 - column 4, lines 17).

As for claim 5, Obara et al shows processing traction motor signal includes proceeding with processing responsive to vehicle data signal (See Fig 1, current control means 70; Fig 2, Column 3,

lines 17 -19; Column 5, lines 37 -41; Column 5, lines 54 - 62; Column 5, lines 64 - Column 6, lines 7).

As for claim 6, Obara et al shows converting traction motor signal into a two-phase signal responsive to traction motor signal (See Fig 1, speed sensor 6a, 6b; Column 4, lines 18 -22).

As for claim 7, Obara et al shows processing includes applying two-phase signal to phase locked loop (PLL) circuitry so as to create a PLL signal responsive to the frequency of two-phase signal (See Fig 2, Fig 4; Column 4, lines 37 - 47; Column 7, lines 35-44).

As for claim 8, Obara et al shows processing further includes processing PLL signal so as to create a two-phase unity signal responsive to the frequency of PLL signal(See Fig 1; Fig 2; Column 5, lines 35 - 47; Column 7, lines 20 -34).

As for claim 9, Obara et al shows processing further includes combining unity signal and two-phase signal so as to create indication result (See Fig 1; Fig 2; Column 5, lines 35 - 47; Column 7, lines 20 -34).

As for claim 10, Obara et al shows determining includes comparing unity signal with two-phase signal so as to determine the frequency error of two-phase signal (See Fig 1; Fig 2; Column 5, lines 35 - 47; Column 7, lines 20 -34).

As for claim 11, Obara et al shows indication result is responsive to the frequency of unity signal(See Fig 1; Fig 2; Column 5, lines 35 - 47; Column 7, lines 20 -34).

As for claim 12, Obara et al shows indication result is responsive to the frequency of two-phase signal(See Fig 1; Fig 2; Column 5, lines 35 - 47; Column 7, lines 20 -34).

As for claim 13, Obara et al shows processing traction motor signal includes determining the magnitude of two-phase signal (See Fig 3, Magnitude comparator; Column 5, lines 33-34).

As for claim 14, Obara et al shows processing includes creating indication result wherein indication result is responsive to the magnitude of two-phase signal(See Fig 2, Fig 3, magnitude comparator, voltage utilization improving circuit 74 where the input voltage magnitude is compared and modified before used for generating the PWM signal; Column 6, lines 50-60).

As for claim 15, Obara et al does not show processing traction motor signal includes isolating a single phase of traction motor signal.

Becerra show processing traction motor signal includes isolating a single phase of traction motor signal (Col 1, Introduction, where only two of the three phases motor is excited, left a single phase of motor isolated).

It would have been obvious to one of ordinary skill in the art to modify the control system and method of Obara et al by providing at least one phase of traction motor signal of Becerra as a reference in order to complete the feedback control loop system.

As for claim 25, Obara et al shows rotational velocity of traction motor is indicative of a velocity of vehicle(Column 1, lines 15 -35; Column 2, lines 40-41; Column 3, lines 30 -45 where the speed sensor detects the current and rotating speed of the motor and the motor serve as driving mean for vehicle).

As for claim 26, Obara et al shows traction motor is connected to an axle of vehicle and the method further comprises determining if a locked axle condition exists (Abstract; Column 1, lines 15 -35; Column 2, lines 40-41; Column 7, lines 45 - 48 where locked axle conditions exists while sensor failure).

As for claim 27, Obara et al shows determining at least one of: determination of speed of vehicle, vehicle adhesion control, vehicle speed control, and wheel diameter determination based on indication result (Column 2, lines 1-19 where the speed reference can used for locked axle indication, speedometer, adhesion control, cruise control, wheel diameter calibration utilizing control system design an sensor design).

As for claim 28, Obara et al shows traction motor signal is based on a voltage generated by a residual flux in traction motor when rotated by movement of vehicle (Column 4, lines 41 - Column 5, lines 35).

As for claim 29, Obara et al shows a data storage medium including instructions encoded in a computer readable form for causing a computer to implement a process for detecting a rotational velocity of a traction motor in a vehicle comprising: obtaining a traction motor signal having at least

one phase, wherein traction motor signal is responsive to an operating condition of traction motor (Column 3, lines 42- 47; Column 4, lines 18-22; Fig 1; Speed Sensor 6 which obtaining motor input signal which respond to motor 4 in two outputs 6a, 6b; where unexcited state is non-input delivered to the system); processing traction motor signal to create an indication result responsive to a frequency of traction motor signal; (Column 3, lines 63 - Column 4, lines 13; Fig 1, primary frequency command generating means 20; alternating current command generating means 80, PWM signal generating means 90); and determining rotational velocity of traction motor based on indication result(See Fig 1, three phase alternating current motor 4, speed sensor 6, current sensor 7, accelerator sensor 8, rotating angular speed detecting means 10; Column 3, lines 30 -50; See Fig 2, 301,31,40,50, M/C; Column 5, lines 48-53).

Obara et al in view of Balch does not show motor signal is responsive to motor in an electrically unexcited state. Becerra shows motor signal is responsive to motor in an electrically unexcited state (Col 1, Introduction, where the sensor is utilized to measure the EMF voltage in motor unexcited phase).

It would have been obvious for one of ordinary skill in the art to provide the EMF voltage measurement, which exhibited in unexcited phase, as the feedback trigger signal as taught by Becerra, to Obara et al in view of Balch, to provide a rotational velocity detection method.

As for claim 30, Obara et al shows a computer data signal encoded in a computer readable medium, data signal comprising code configured to direct a computer to implement a process for detecting a rotational velocity of a traction motor in a vehicle comprising: obtaining a traction motor signal having at least one phase(Column 3, lines 42- 47; Column 4, lines 18-22; Fig 1; Speed Sensor 6 which obtaining motor input signal which respond to motor 4 in two outputs 6a, 6b),

wherein traction motor signal is responsive to an operating condition of traction motor (Column 3, lines 42- 47; Column 4, lines 18-22; Fig 1; Speed Sensor 6 which obtaining motor input signal which respond to motor 4 in two outputs 6a, 6b); processing traction motor signal to create an indication result responsive to a frequency of traction motor signal(Column 3, lines 63 - Column 4, lines 13; Fig 1, primary frequency command generating means 20; alternating current command generating means 80, PWM signal generating means 90); and determining rotational velocity of traction motor based on indication result (See Fig 1, three phase alternating current motor 4, speed sensor 6, current sensor 7, accelerator sensor 8, rotating angular speed detecting means 10; Column 3, lines 30 -50; See Fig 2, 301,31,40,50, M/C; Column 5, lines 48-53).

Obara et al in view of Balch does not show motor signal is responsive to motor in an electrically unexcited state. Becerra shows motor signal is responsive to motor in an electrically unexcited state (Col 1, Introduction, where the sensor is utilized to measure the EMF voltage in motor unexcited phase).

It would have been obvious for one of ordinary skill in the art to provide the EMF voltage measurement, which exhibited in unexcited phase, as the feedback trigger signal as taught by Becerra, to Obara et al in view of Balch, to provide a rotational velocity detection method.

As for claim 31, Obara et al shows a computer processor on a vehicle for performing a process for detecting a rotational velocity of a traction motor in a vehicle comprising: obtaining a traction motor signal having at least one phase,(Column 3, lines 42- 47; Column 4, lines 18-22; Fig 1; Speed Sensor 6 which obtaining motor input signal which respond to motor 4 in two outputs 6a, 6b) wherein traction motor signal is responsive to an operating condition of traction motor (Column 3, lines 42- 47; Column 4, lines 18-22; Fig 1; Speed Sensor 6 which obtaining motor input

signal which respond to motor 4 in two outputs 6a, 6b); processing traction motor signal to create an indication result responsive to a frequency of traction motor signal(Column 3, lines 63 - Column 4, lines 13; Fig 1, primary frequency command generating means 20; alternating current command generating means 80, PWM signal generating means 90); and determining rotational velocity of traction motor based on indication result (See Fig 1, three phase alternating current motor 4, speed sensor 6, current sensor 7, accelerator sensor 8, rotating angular speed detecting means 10; Column 3, lines 30 -50; See Fig 2, 301,31,40,50, M/C; Column 5, lines 48-53).

Obara et al in view of Balch does not show motor signal is responsive to motor in an electrically unexcited state. Becerra shows motor signal is responsive to motor in an electrically unexcited state (Col 1, Introduction, where the sensor is utilized to measure the EMF voltage in motor unexcited phase).

It would have been obvious for one of ordinary skill in the art to provide the EMF voltage measurement, which exhibited in unexcited phase, as the feedback trigger signal as taught by Becerra, to Obara et al in view of Balch, to provide a rotational velocity detection method.

As for claim 32, Obara et al shows a system for detecting a rotational velocity of a traction motor in a vehicle comprising: a traction motor generating a traction motor signal having at least one phase (Column 3, lines 42- 47; Column 4, lines 18-22; Fig 1; Speed Sensor 6 which obtaining motor input signal which respond to motor 4 in two outputs 6a, 6b), wherein traction motor signal is responsive to an operating condition of traction motor (Column 3, lines 42- 47; Column 4, lines 18-22; Fig 1; Speed Sensor 6 which obtaining motor input signal which respond to motor 4 in two outputs 6a, 6b); a voltage sensor configured to generate a signal indicative a voltage generated by residual flux in traction motor when rotated by movement of vehicle with traction motor in an

electrically unexcited state; (See Fig 1, three phase alternating current motor 4, speed sensor 6, current sensor 7, accelerator sensor 8, rotating angular speed detecting means 10; Column 4, lines 41 - Column 5, lines 35); and a controller in operable communication with at least one of traction motor and voltage sensor configured to process traction motor signal and signal, See Fig 1, three phase alternating current motor 4, speed sensor 6, current sensor 7, accelerator sensor 8, rotating angular speed detecting means 10; current control means 70; Column 5, lines 37- 53; Column 3, lines 30 -50 where the speed sensor and current , accelerator sensor are used to diagnostic and process the traction motor signal as the input to controller) and thereby create an indication result responsive to a frequency of traction motor signal and indicative of rotational velocity of traction motor (See Fig 1, three phase alternating current motor 4, speed sensor 6, current sensor 7, accelerator sensor 8, rotating angular speed detecting means 10; current control means 70; Column 5, lines 37- 53; Column 3, lines 30 -50; See Fig 2, 301,31,40,50, M/C; Column 5, lines 48-53).

Obara et al in view of Balch does not show motor signal is responsive to motor in an electrically unexcited state. Becerra shows motor signal is responsive to motor in an electrically unexcited state (Col 1, Introduction, where the sensor is utilized to measure the EMF voltage in motor unexcited phase).

It would have been obvious for one of ordinary skill in the art to provide the EMF voltage measurement, which exhibited in unexcited phase, as the feedback trigger signal as taught by Becerra, to Obara et al in view of Balch, to provide a rotational velocity detection method.

5. Claims 3, 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Obara et al (US Pat NO. 5,661,380) in view of Becerra (Four Quadrant Sensorless Brushless ECM Drive ; CH2992-6/91/0000-0202, IEEE) and further in view of Balch .

As for claim 3, Obara et al shows vehicle data signal includes a reference speed signal responsive to a rotational velocity of additional traction motor (See Fig 1, primary frequency command generating means 20, vector control calculating means 50, alternating current command generating means 80, PWM signal generating means 90 where provides reference feed back signal accordingly to the vehicle condition alone with standard signal Eu, Ev, Ew; column 3, lines 51 - column 4, lines 17). Obara et al in view of Becerra does not show the vehicle includes an additional traction motor.

Balch et al shows, vehicle includes an additional traction motor (Column 2, lines 9-10, Column 2, lines 35 -43).

It would have been obvious to one of ordinary skill in the art to modify the control system and method of Obara et al by adding an additional motor in order to achieve determining a reference speed approximating a ground speed of a vehicle having a plurality of axles for the locomotive.

As for claim 4, Balch et al shows vehicle data signal includes a reference speed tolerance (Column 3, lines 27 - 37 where the minimum speed wheel slip is selected as the reference speed tolerance).

It would have been obvious to one of ordinary skill in the art to modify the control system and method of Obara et al by adding the reference speed tolerance in order to eliminate cost and improve accuracy due to ground conditions and other environmental conditions.

6. Claims 16-20; 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obara et al (US Pat NO 5,661,380) in view of Becerra (Four Quadrant Sensorless Brushless ECM Drive; CH2992-6/91/0000-0202, IEEE) and further in view of Kumar et al (US Pat NO 5,992,950).

As for claim 16, Kumar et al shows processing traction motor signal includes applying single phase of traction motor signal to a rectifier so as to create a rectified signal(See Fig 1, power rectifier 13; Column 3, lines 22- 47).

It would have been obvious to one of ordinary skill in the art to modify the control system and method of Obara et al by adding rectification means of Kumar et al in order to obtain the magnitude of output current.

As for claim 17, Kumar et al shows processing traction motor signal includes applying rectified signal to a low pass filter so as to create an indication result responsive to the magnitude of single phase of traction motor signal (Column 3, lines 42-47; Column 4, lines 20-27).

It would have been obvious to one of ordinary skill in the art to modify the control system and method of Obara et al by adding the lower frequency filter means of Kumar et al in order to minimizes transient voltage variants and stabilizes Direct Current voltage.

As for claim 18, Kumar et al shows processing traction motor signal includes processing single phase of traction motor signal so as to create indication result responsive to the magnitude of single phase of traction motor signal (Column 4, lines 7-26).

It would have been obvious to one of ordinary skill in the art to modify the control system and method of Obara et al by create at least one phase of traction motor signal of Kumar et al as a reference signal in order to compare the feedback control loop system signal.

As for claim 19, Obara et al shows processing traction motor signal includes determining the time between predefined signal event occurrences so as to create an indication result responsive to

the frequency of signal phase of traction motor signal (Column 3, lines 60 - Column 4, lines 17; Column 4, lines 41 - Column 5, lines 30).

As for claim 20, Kumar et al processing traction motor signal includes processing traction motor signal so as to create indication result responsive to the frequency of traction motor signal(Column 2, lines 34 - 55; Column 4, lines 8 - 26; Column 6, lines 23 -60).

It would have been obvious to one of ordinary skill in the art to modify the control system and method of Obara et al by adding the motor signal frequency control means of Kumar et al in order to create desired responsive signal to traction motor signal in frequency

As for claim 22, Kumar et al shows processing traction motor signal includes obtaining a vehicle data signal and applying single phase of traction motor signal to a band pass filter so as to create a band pass output signal responsive to vehicle data signal(See Fig 3, Column 8, lines 13 - 30).

It would have been obvious to one of ordinary skill in the art to modify the control system and method of Obara et al by adding the lead lag filter of Kumar et al in order to provide certain frequency operation range for the motor.

As for claim 23, Kumar et al shows processing traction motor signal includes applying band pass output signal to a signal rectifier so as to create a rectified signal (See Fig 1, Fig 3; Column 6, lines 62- Column 7, line 3; Column 4, lines 48-67 where prime mover 11 provides signal toward main alternator for power rectification).

It would have been obvious to one of ordinary skill in the art to modify the control system and method of Obara et al by applying the process means of Kumar et al to apply the band pass signal to signal rectifier in order to utilize the band pass signal as a reference to compare with three phase motor signals in magnitude after rectification.

As for claim 24, Kumar et al shows processing traction motor signal includes applying rectified signal to a low pass filter so as to create indication result wherein indication result is responsive to the magnitude and frequency of single phase of traction motor signal (Column 3, lines 42-47; Column 4, lines 20-27).

It would have been obvious to one of ordinary skill in the art to modify the control system and method of Obara et al by adding the lower frequency filter means and create responsive reference signal of Kumar et al in order to minimizes transient voltage variants and stabilizes Direct Current voltage and complete feedback loop reference signal.

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Obara et al (US Pat NO 5,661,380) in view of Becerra (Four Quadrant Sensorless Brushless ECM Drive ; CH2992-6/91/0000-0202, IEEE) and further in view of Discenzo (US Pat No. 6,326,758).

As for claim 21, Obara et al in view of Becerra dos not show processing traction motor signal includes calculating indication result using Fourier analysis, wherein indication result is responsive to the magnitude and frequency spectrum of traction motor signal.

Discenzo shows processing traction motor signal includes calculating indication result using fourier analysis, wherein indication result is responsive to the magnitude and frequency

spectrum of traction motor signal (Column 6, lines 51 - 65; Column 14, lines 38 - 50; Column 9, lines 22 - 35).

It would have been obvious to one of ordinary skill in the art to modify the signal analysis method of Obara et al in view of Kumar et al by implementing the signal analysis method of Discenzo in order to advantageously utilize the outputs of the control system and to optimize the performance of control system.

Response to Arguments

1. Applicant's arguments with respect to claims 1- 32 have been considered but are moot in view of the new ground(s) of rejection.

2. In response to applicant's argument that examiner does not exhibit the burden of establishing a prima facie case of obviousness, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

3. Applicant aruges the reference does not show a method for detecting a rotational velocity of a traction motor i a vehicle comprising: obtaining a traction motor signal having at least one phase wherein traction motor signal is responsive to an operating condition of traction motor in an electrically unexcited state; applicant's attention is directed to the utilized reference, where Becerra shows motor signal is responsive to motor in an electrically unexcited state (Col 1, Introduction,

where the sensor is utilized to measure the EMF voltage in motor unexcited phase), where Obara et al shows detecting a rotational velocity of a traction motor in a vehicle comprising: obtaining a traction motor signal having at least one phase, wherein traction motor signal is responsive to an operating condition of traction motor (Column 3, lines 42- 47; Column 4, lines 40- Col 5, lines 25; Fig 1; Speed Sensor 6 which obtain the motor input signal which respond to motor 4 in two outputs 6a, 6b.)

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IAN JEN whose telephone number is (571)270-3274. The examiner can normally be reached on Monday - Friday 9:00-6:00 (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi Tran can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ian Jen/
Examiner, Art Unit 3664
/Khoi H Tran/
Supervisory Patent Examiner, Art Unit 3664